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ABSTRACT

This monograph presents a brief review of the literature on integrating students with disabilities into mainstream educational programs. It begins by clarifying such terms as normalization, least restrictive environment, mainstreaming, and integration. It offers a historical perspective with a Canadian emphasis. The research on efficacy of integration is reviewed in terms of academic effects and social skills. Limitations of efficacy research are identified, including definitions of the handicapped population, educational intervention factors, and measurement of the dependent variable. Cost implications are considered. The importance of identifying effective practices is emphasized in a review of effective instructional practices and effective social skills instruction. Finally, six issues are recommended for future consideration before the adoption and implementation of widespread integration, including: integration cannot be viewed as a cost-saving measure, support services must be considered an integral part of any integration model, and Canadian teacher training programs should require all teachers in training to take special education courses. Appendixes provide additional information on the Cascade Service Delivery Model, the Modified Cascade Model, the Adaptive Learning Environment Model, the Integrated Classroom Model, and the Collaborative/Consultative Model. (23 references) (DB)

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INTEGRATING EXCEPTIONAL STUDENTS

INTO THE MAINSTREAM

LITERATURE REVIEW

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INTRODUCTION

Integration has been, and continues to be, one of the most controversial issues in education. There is much debate regarding the terminology associated with integration and whether it is an effective practice for all students. While not intended to be exhaustive, this review of the literature will serve to clarify some of these issues and provide a framework for further discussion.

CLARIFICATION OF TERMS

There are several terms used throughout the literature and in the field that reflect similar philosophical bases but have subtle differences. The following terms will be defined and described: normalization, the least restrictive environment (LRE), mainstreaming and integration.

Normalization, according to Ruhl (1983), is a term most commonly used in reference to severely and profoundly disabled populations. It is both a process and a goal which reflects the intention to make the experiences of individuals with disabilities as similar to those of their non-disabled peers as possible so that "normal" behavior and characteristics are developed.

Least restrictive environment (LRE) was described by Ruhl (1983) as a program placement. It is not intended to mean that all students with disabilities should be educated in a regular classroom setting. Rather, it mandates that each child should be served in a setting that is as close to normal as possible while still meeting the special and unique needs of the child. The child should be integrated into the regular physical and social settings to the maximum extent appropriate. Examples of service delivery in a least restrictive environment are presented in Appendices A and B.

Mainstreaming and integration are terms that are often used synonymously although subtle distinctions between the two can be made. Reynolds & Birch (1988), however, narrowed the definition to exclude the "least restrictive" clause and "range of options" and define mainstreaming as "providing special education and related services to exceptional children while they attend regular classes and schools" (p.1). Mainstreaming has been defined by Ruhl (1983) again as both a process and a goal. As a goal, mainstreaming is composed of several incremental steps with the final step being regular class placement. As a process, Ruhl defines mainstreaming as "the act of combining the skills of regular and special educators to assure all children equal educational opportunities and to develop alternative strategies supportive of the provision of appropriate services in the least restrictive setting", a setting "which meets their unique needs and which is the closest approximation of the placement experienced by non-handicapped students" (pp.3-4). Epps & Tindal (1987) also made reference to the "multiple service levels" in regard to the concept of mainstreaming.

Hoben (1980) provided an appropriate distinction between mainstreaming and integration and likens it to the difference between desegregation and integration evident in the racial desegregation movements of the 1960's. Hoben described mainstreaming as a legislated goal whereas integration is an ongoing process that cannot be mandated. Hoben stated, "educating handicapped students in the mainstream creates opportunity for integration, but it offers little assurance that integration will actually occur" (p.100).

The philosophy of mainstreaming is manifested in the process of integration (Winzer, 1987). The close relationship of these two terms often causes them to be used interchangeably and thus will be used synonymously for the purpose of this discussion.

HISTORICAL PERSPECTIVE

During the 1950's and 1960's increasing concern in the United States about special education centred around several questions including: were special education classes providing remediation of students' difficulties; was a stigma attached to special education placement; was there a variability in the quality of instruction in special education classes; what was the return rate to regular classes from special education. Consequently, there was a rise of parent organizations and professional groups which were exerting pressure and influence on legislators by lobbying for improved services in special education. The culmination of this movement was the enactment of the Education for All Handicapped Act of 1975 (PL 94-142) which defined the educational rights for children with disabilities. It is the purpose of PL 94-142 "to assure that all handicapped children have available to them...a free appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents and guardians are protected, to assist States and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children" (Taylor & Searl, 1987, p.40). As a result of the implementation of PL 94-142, children with disabilities began to enter regular schools and regular classes in ever-increasing numbers.

There was a similar rise in parent advocacy groups and demand for special education services in Canada. However, there is no federal legislation in Canada equivalent to PL 94-142. Each province and territory has its own education legislation and thus each is left to develop its own regulations, policies and procedures. Manitoba, New Brunswick, Newfoundland, Nova Scotia, Ontario, Quebec, and Saskatchewan have mandatory legislation which guarantees access to special education. British Columbia, Prince Edward Island, and both Territories have permissive laws which allow the option of providing special educational services to handicapped children but are under no legal obligation to do so (Winzer, 1990). With the passage of the School Act (1988), Alberta requires that a school board provide for the education of each child resident in its district. Through policy, Alberta Education expects school districts to identify children with special needs and subsequently provide them with appropriate education programs.

Regardless of whether a province has mandatory or permissive legislation, the Canadian Charter of Rights and Freedoms (1985) allows for families to challenge decisions regarding the provision of services by school boards. Section 15(1) states that all individuals are "equal before and under the law" and have the "right to the equal protection of the law without discrimination" (Hill, 1988, p.124). Alberta Education (1987) in its Program Adequacy Document states that "although it is as yet unclear what the term 'equal' means when it applies to education, this section is being taken to support clearly the right of everyone to an education. It may be invoked if a parent feels that one child, because of a handicapping condition, is being denied a benefit which is provided to others" (p.5). This clearly has ramifications for the integration issue.

Hill (1988) reported that in Canada the incidence of integration of special needs children appears to be on the increase notwithstanding provincial legislation or the influence of the Charter of Rights. A 1983 study by the Canadian Council of Ministers of Education indicated that 76.76% of exceptional students were in integrated programs, ranging from 15.9% of multiply handicapped children to 96.8% of children with speech impairments (Canada, Council of Ministers, 1983 as cited in Hill, 1988).

EFFICACY OF INTEGRATION OF EXCEPTIONAL CHILDREN

Academic Effects

Epps & Tindal's (1987) summary of studies investigating the efficacy of integration from an academic perspective indicated that early research in this area across a variety of handicapping conditions was contradictory and inconclusive. For example, Sabatino (1971, as cited in Epps & Tindal, 1987) found that learning disabled students in self-contained classes made more academic gains in reading than their counterparts in regular classrooms. Myers (1976, as cited in Epps & Tindal, 1987) found that educably mentally retarded (EMR) students with lower IQs (49-70) made greater academic gains in a segregated setting, while EMR students with higher IQs (71-85) made more gains in the regular class. Bersoff, Kabler, Fiscus & Ankney (1972, as cited in Epps & Tindal, 1987) found that neither special class placement nor individual tutoring increased the academic performance of neurologically handicapped children to a greater extent than that obtained in regular classrooms. These studies are indicative of much of the available research and illustrate that the relative academic benefits of regular versus special class placement have not been clearly demonstrated. Some studies favor self-contained special classes, while others indicate no significant differences between the two settings or an advantage of regular classes (Epps & Tindal, 1987).

In an attempt to clarify this issue, two meta-analyses were conducted to examine and compare the relative merits of special education versus regular class placement. The purpose of a meta-analysis as defined by Epps & Tindal (1987) is to "draw conclusions about a certain topic by systematically analyzing and integrating the results of a large number of studies" (p.225). The first of these meta-analyses was conducted by Carlberg & Kavale (1980) using 50 studies from 1932 to 1977. They concluded that special class settings were inferior to regular class placements. However, special class placements were found to be preferable for learning disabled (LD) and behaviorally/ emotionally disturbed students.

In a recent National Longitudinal Transition Study (NLTS), Wagner (1990), also cautioned against the use of regular class placements for LD students. These students were more likely to do poorly, in terms of grade failure, the more time they spent in regular education classes. However, Wagner made an important observation that the quality and effectiveness of instruction were far more important than the type of placement. That is, students with learning disabilities can be instructed poorly, or well, in either regular education or special education placements.

In the second meta-analysis, Wang & Baker (1985-86) selected 11 studies from 1975 to 1984. Their findings also provided support for mainstreaming but contrary to Carlberg & Kavale (1980), they found no differentiation between the effects of integration on various handicapping conditions.

Sasso & Rude (1988) reported that only one study has been conducted to measure the effects of integration on the academic outcomes for non-handicapped students. Integration of handicapped students into the regular class was not found to be detrimental to non-handicapped students.

Social Effects

Gresham (1982) suggested that while the concept of mainstreaming to promote social interaction is philosophically desirable, it is based on several faulty assumptions. The first of these is that physical placement of children with handicaps in regular classrooms will result in an increase of social interaction between handicapped and non-handicapped children. The second erroneous assumption is that regular class placement for handicapped children will result in greater social acceptance of the handicapped children by their non-handicapped peers. Thirdly, handicapped children in mainstreamed classes are assumed to model the behavior of their non-handicapped peers. A consistent pattern has emerged from the many sociometric studies which indicates that these assumptions are indeed inaccurate. While mainstreaming allows for increased social contact between handicapped and non-handicapped individuals, it does not ensure the social acceptance or increased appropriate social behavior of handicapped students (Fox, 1989).

Several researchers have examined the sociometric status of students with a variety of handicapping conditions in mainstreamed classes. Sabornie's (1985) summary of the results of studies involving educable mentally retarded (EMR), learning disabled (LD), emotionally disturbed (ED), visually impaired (VI), and hearing impaired (HI) students indicates that in general, handicapped students are not well accepted by their non-handicapped peers. While research in ED, VI, and HI students is scarce, available studies suggest that these students are lower in sociometric status than their non-handicapped peers. Students with mild to moderate hearing losses, however, were less accepted than were those with severe to profound levels of hearing loss.

In another summary of the research, Gresham (1982) similarly concluded that handicapped children (including MR, LD, and ED) are poorly accepted by their non-handicapped peers. Non-handicapped children also interact very little with handicapped children in the mainstream. Social interaction pattern between nonhandicapped and handicapped children (MR, LD, and ED) occur at extremely low rates and are generally negative in nature.

There appear to be some differential effects of social acceptance of mainstreamed versus non-integrated handicapped students with disabilities. There is some evidence to suggest that non-integrated handicapped children are actually better accepted by their peers than handicapped children in the mainstream (Gresham, 1982; Madden & Slavin, 1983).

Sabornie (1985) also reported that there is a lack of knowledge about how mainstreamed handicapped students perceive other handicapped students in the same regular classes. EMR, LD, and ED students appeared to perceive other handicapped students carrying the same label to be higher in sociometric status than those carrying a different label. ED students were the least accepted students of the three categories.

The social effects of integration on non-handicapped students is another area in which research is scant. Sasso & Rude (1988) suggested that integration efforts can have a positive social effect on non-handicapped students providing there is a structured and carefully implemented social intervention program. However, due to the methodological limitations of this study, these results need to be interpreted with caution.

The findings of research regarding the social effects of mainstreaming indicate that the social integration of handicapped students has not been successfully achieved. That is not to say that attempts to socially integrate handicapped children should be abandoned. Gresham (1982) and Madden & Slavin (1983) suggested that handicapped children are placed in regular classrooms without the necessary prerequisite social skills and without ongoing support to enhance these skills. Non-handicapped students are also not provided with support to modify their attitudes towards their handicapped peers. Consequently, mainstreaming efforts are likely to result in increased social isolation and more restrictive social environments.

LIMITATIONS OF EFFICACY RESEARCH

Ruhl (1983) suggested that "conclusive statements as to actual efficacy...of mainstreaming outcome are not currently possible due to the contradictory results of the research" (p.9). This contention was supported by Reynolds & Birch (1988) who indicated that it is still too early to make statements about the relative outcomes of mainstreaming with any certainty. There are several factors which contribute to the difficulty in drawing conclusions about the efficacy of mainstreaming. These include the relative newness of the practice of integration, the reliance on unstructured and uncontrolled "studies," and the methodological flaws in more empirical research.

Limitations on the quality and quantity of research studies have arisen since integration is still a relatively new practice which is not widespread. For example, confusion exists regarding the definitions of mainstreaming and integration, the number of jurisdictions implementing integrated programming are relatively few, and consequently there are fewer comparative groups to involve in research studies.

Many of the studies which report positive results for mainstreamed students lack the rigor necessary for effective research design. These "studies" rely on anecdotal reports by parents, students and teachers who express positive reactions to a mainstreamed setting (Reynolds & Birch, 1988). These are more likely reflective of an endorsement of the philosophical underpinnings of integration rather than based on actual growth in outcome indicators.

The recognition of the inadequacies of anecdotal type studies prompted a number of efforts to examine the efficacy of mainstreaming through more rigorously designed research. However, many of these studies suffered from serious methodological shortcomings, which centre around three main areas: definition of the handicapped population, educational intervention factors, and measurement of the dependent variable.

Definition of the Handicapped Population

"A major problem in attempting to evaluate the efficacy of special education for a particular category is that each category represents a heterogeneous group of students who have been classified according to diverse and often ambiguous criteria that may vary from district to district..." (Epps & Tindal, 1987, p.216). In addition, the severity of the disability (mild to severe) and the age of the student may also impact on the effectiveness of any integration (Ruhl, 1983). A student's previous placement history must also be considered because there is a potential for past educational interventions to interact with current program placement (Epps & Tindal, 1987).

Educational Intervention Factors

There are several factors which confound the evaluation of educational interventions. These may include the amount of instructional time, the degree of integration into regular classrooms, unclear goals and objectives, teacher attitude, inconsistent application of instructional methods and materials, and methods for monitoring student progress (Ruhl, 1983). It may be that these factors have a greater impact on the effectiveness of instruction rather than the setting in which instruction occurs. In order to control some of these factors, it is necessary to have a model of instruction which promotes good pedagogy and facilitates replicability for research purposes. Examples of possible instructional models are presented in Appendices C and D. While the consistency of implementation of any model remains under the control of the teacher, the structure of these models increases the likelihood that teachers would be uniform in doing so.

Measurement of the Dependent Variable

The dependent variable in a research study refers to the observations one makes about a certain intervention. Changes in the dependent variable (eg., achievement level, social acceptance, attitudes) are assumed to be a result of the intervention (in this case, integration). The following are some of the problems associated with measuring the dependent variable in efficacy studies (Epps & Tindal, 1987):

1. Standardized tests may not measure the subtle effects of treatment.
2. Comparisons between tests which purport to measure the same skill are difficult as these tests may actually sample different skills.
3. Tests which are used may have low content validity, that is, the content of the test is not reflective of the instructed curriculum.

4. The differences in achievement scores of nonintegrated versus integrated students may be a function of the relative emphasis on academic subjects in each setting.

5. The instruments used to measure the dependent variable may lack reliability. This is particularly true for measures of social behaviors.

6. When the dependent variable is being measured through the use of teacher checklists, the same behavior may be rated differently by regular and special education teachers because they have different frames of reference.

7. The use of grade equivalents as the measure of the dependent variable can give a distorted and exaggerated impression of a student's level of achievement.

COST IMPLICATIONS

Research investigating the cost implications of integration is scant. Even when cost effectiveness is studied, the research suffers from the same methodological limitations discussed previously. Many studies on the efficacy of mainstreaming tend to make general statements that integration should not be viewed as a cost saving measure. Stainback & Stainback (1989) cautioned that "it is critical that we advocate for the integration of resources and personnel as well as students into regular education" (p.255). They suggested that the high cost of segregated special education programs places a tremendous drain on available resources resulting in a less effective mainstream for both regular and special needs students. Funding for special education services also tends to fluctuate depending upon economic conditions. When there is more money available, larger numbers of special needs students tend to be identified. In times of budget restraint, support services are often reduced or withdrawn.

Affleck, Madge, Adams, & Lowenbraun (1988) investigated the cost effectiveness of the Integrated Classroom Model (see Appendix D), in a school district in Washington state, compared to a standard resource room model. This analysis was based on "ideal" conditions in which special and regular education students were spread equally across grades. In this model, the Integrated Classroom Model (ICM) teachers were funded 25% by the special education budget and 75% by the regular education budget as compared to the resource room teachers who were funded 100% by special education money. The ICM reduced the cost to special education funding of FTE (full-time equivalent) teachers (1.25 FTE versus 2.9 FTE) but increased the amount designated for teacher aides. The combined costs of special education FTE and teacher aide support resulted in a savings to the special education budget. Using the ICM, regular classroom teachers are partially funded by special education which consequently resulted in a savings to the regular education budget as well.

Additional costs for staff development were not reflected in this analysis. There were no major differences in the costs of supplies and materials between the two models, as specialized materials from resource rooms were dispersed to the appropriate ICM classes.

This analysis was based on one specific school district's implementation of the ICM and thus caution must be used when attempting to generalize these findings to other situations. These potential savings could vary from district to district based on how regular and special education budgets share funding for an ICM teacher.

EFFECTIVE PRACTICES

The question of the efficacy of mainstreaming has not been clearly or consistently answered by the research. Perhaps this situation suggests that the focus of investigations should not centre on whether integrated placements are more desirable than segregated settings. Rather, the emphasis should be shifted to the consideration of what variables account for effective practices in both settings.

Effective Instructional Practices

Stainback, Stainback, Courtnage & Jaben (1985) highlighted three major regular instructional practices that may facilitate mainstreaming. The first of these practices focuses on the need for individualized programming to accommodate the unique needs of each child. Such programming would be "criterion based; instructional objectives, pacing, and materials are selected according to their appropriateness to the individual student rather than norm referenced or selected in accordance with expected average for the student's peer group" (Stainback et al., p.146). The second instructional practice, inclusion of cooperative activities, refers to the social aspect of the environment. This will be addressed further in the following section on effective social skill instruction. The third instructional practice advocated by Stainback et al. involves creating adaptive learning environments. Such environments support four main goals that include "a) identification of learning problems through a diagnostic-prescriptive monitoring system integrally related to the program's instructional component; b) delabeling of mainstreamed "special" students and description of learning needs in instructional, rather than categorical terms; c) individually designed educational plans that accommodate each student's learning strengths and needs; and d) teaching of self-management skills that enable students to take increased responsibility for their learning" (Wang & Birch, 1984b, p.33 as cited in Stainback et al., 1985, p.146).

Epps & Tindall (1987) also addressed what they refer to as "significant elements" of instructional models that they highlighted in effective programs for mildly handicapped students. They identified common elements of these programs including: active teaching, frequent measurement and monitoring of students' mastery levels, and instructional sequences which are well described. This ensures that the programs may be consistently implemented and subsequently allows for replication of the model.

Effective Social Skills Instruction

Gresham (1982) suggested that there is a difference between the intent and the implementation of integration for social purposes. While the desire to integrate handicapped students in order to increase social acceptance and interaction may be an admirable goal, simply placing these children in a mainstreamed setting does not ensure that this will occur. Gresham cautioned that we must "reassess our current proclivities toward indiscriminate mainstreaming. Redirection of efforts toward social skills assessment and training before, during, and after integration into regular classrooms should allow both handicapped and non-handicapped children to extract maximum positive benefits from mainstreaming efforts" (p.430).

Several strategies may be effective in providing increased social interaction (Sasso & Rude, 1988). These include peer tutoring, curricular infusion techniques in which students are taught about various disabilities, peer initiation interventions that assist non-handicapped students to prompt social interactions, and "special friends" programs that pair handicapped and non-handicapped students.

Fox (1989) suggested that social skills training have a dual approach. Handicapped students are taught prosocial behaviors through modelling, shaping, coaching and problem solving. Attitudes of non-handicapped students are changed through role playing, peer tutoring and reinforcement.

The structure of the learning situation can also encourage social interaction (Hoben, 1980). This can be done through the physical arrangement of the classroom, minimizing the amount of time handicapped students are "pulled-out" of the class, and facilitating cooperative learning. Structured cooperative learning activities can increase the interaction between all students, encourage and develop social skills and enhance the appreciation of individual differences. Competitive situations and large amounts of individual instruction, in contrast, may promote rejection and isolation of students with disabilities (Johnson & Johnson, 1980).

FUTURE CONSIDERATIONS

"Although mainstreaming has become the dominant ideology in special education, no other concept seems so fraught with confusion and misconceptions" (Winzer, 1987, p.16). Winzer et al. juxtaposed the ideal practice of mainstreaming with several faulty assumptions regarding its purpose and implementation. Mainstreaming is intended to offer a range of services that enable educational programs to be tailored to meet the individual needs of students. Such services should be adaptable to a variety of settings using a modified curriculum and supported through various professionals. Special help should be received in the regular classroom to the maximum extent appropriate. In addition, mainstreaming should facilitate peer contact and interaction.

Winzer et al. (1987) dispute the faulty assumptions held by both proponents and critics of mainstreaming. Integration is not intended to eliminate all special classes, special education teachers, and support services. Nor is it intended to indiscriminately "dump" all children from special education classes into regular education. Rather than concentrating on the physical setting, emphasis must be shifted to identifying practices which promote effective academic and social skills instruction.

Future consideration about the adoption and implementation of widespread integration should address several issues:

1. Since the research to date has been inconsistent and inconclusive, there is a need for methodologically sound studies which will increase the knowledge base.

2. Integration cannot be viewed as a cost saving measure. Rather, a commitment must be made to allocate necessary and sufficient funding to ensure effective integration practices.

3. Support services must be considered an integral part of any integration model. The tendency to reduce these services in times of budgetary restraint must be guarded against if integration is to be effective.

4. Mainstreaming is not an "all or nothing" proposition. It is important to maintain a continuum of services that will ensure equitable, but not necessarily equal, treatment.

5. Current Canadian teacher training programs vary widely. Many do not require regular education teachers to complete courses in special needs. Consequently, many teachers feel ill-prepared to deal with special education students in the regular classroom. It would be prudent for universities to include mandatory special education courses for all teachers in training. As well, school districts must accept the responsibility to provide ongoing in-service training for their teachers.

6. While the structure of an integration model can be mandated through legislation, the attitudes of parents, teachers and students cannot. That is not to say that attitudes are unchangeable; however, specific measures must be instituted to encourage this change.

Stainback & Stainback (1989) suggested that "whether we integrate our schools is in the final analysis not a scientific or research issue. It is one of equality for all society's members" (p.262). If integration is considered a moral and ethical imperative, then school districts are obligated to implement practices which ensure appropriate instruction for every student.

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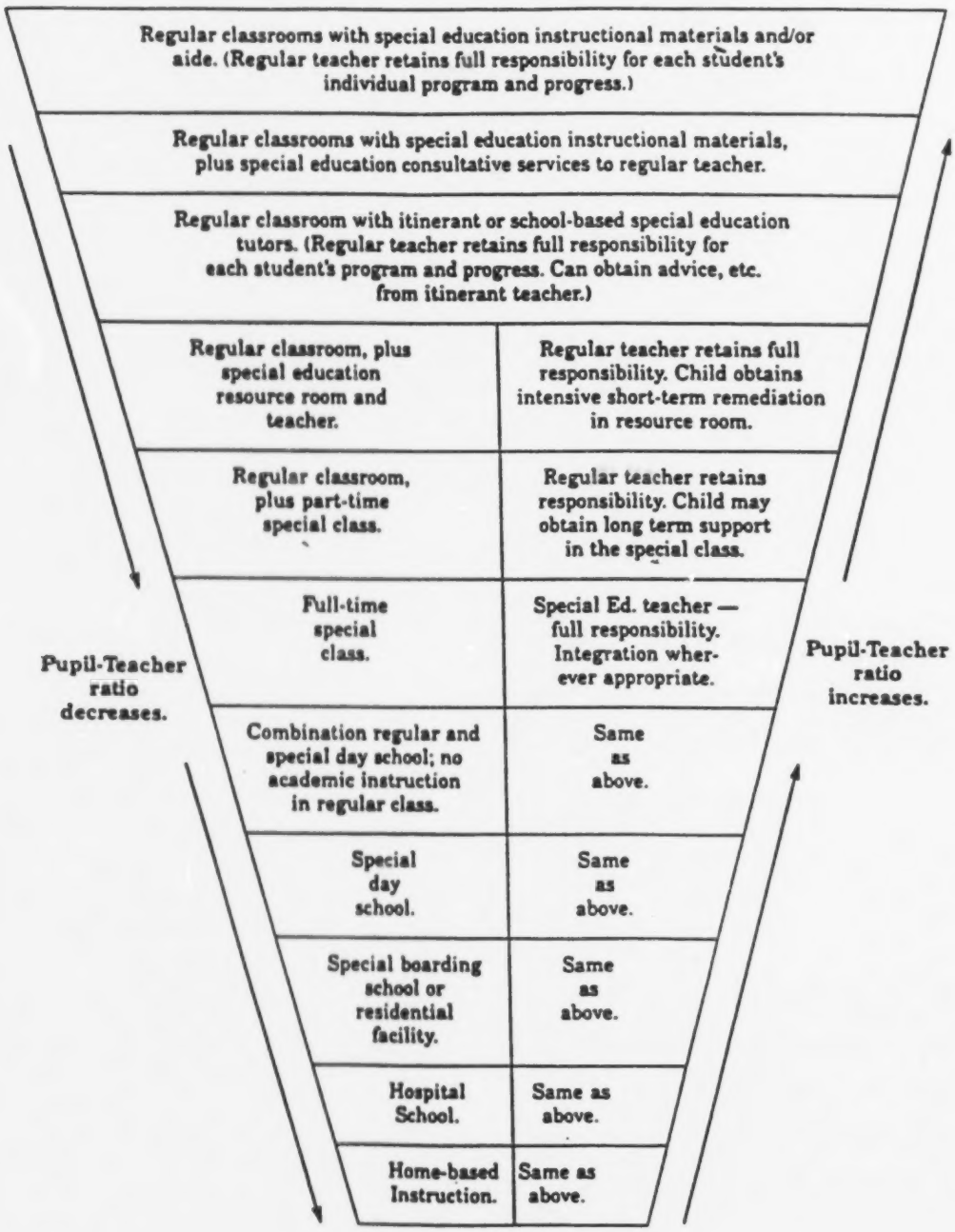
APPENDIX A

Cascade Service Delivery Model

Alberta Education has adopted the Cascade Model of Service Delivery and modified it to meet the unique needs of Alberta (Alberta Education, 1987). This model (Figure 1) presents a range of service delivery options from full integration to full segregation designed to meet the individual needs of special education students. The diminishing ratio of students to adults which may occur as the severity of a handicap increases is also reflected. The determination of the least restrictive environment for each student depends upon the unique needs of that student. That is, the severity of a student's handicap may dictate a more protective environment in order to best serve the student's needs.

Figure 1

Cascade Service Delivery Model

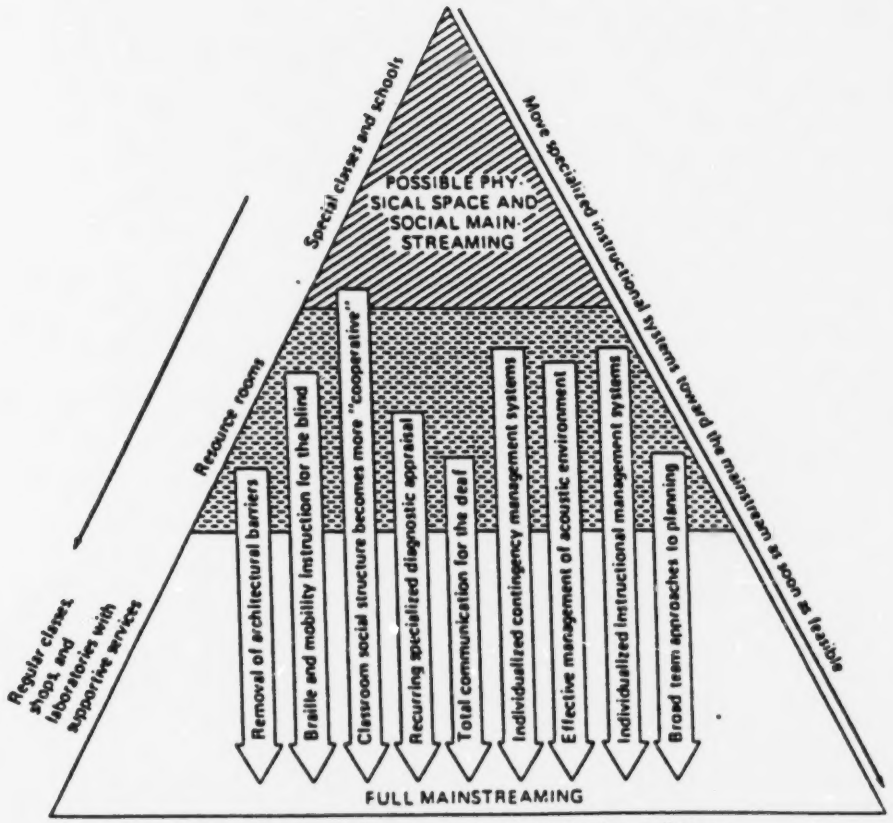

Regular classrooms with special education instructional materials and/or aide. (Regular teacher retains full responsibility for each student's individual program and progress.)
Regular classrooms with special education instructional materials, plus special education consultative services to regular teacher.
Regular classroom with itinerant or school-based special education tutors. (Regular teacher retains full responsibility for each student's program and progress. Can obtain advice, etc. from itinerant teacher.)
Regular classroom, plus special education resource room and teacher.
Regular teacher retains full responsibility. Child obtains intensive short-term remediation in resource room.
Regular classroom, plus part-time special class.
Regular teacher retains responsibility. Child may obtain long term support in the special class.
Full-time special class.
Special Ed. teacher — full responsibility. Integration wherever appropriate.
Combination regular and special day school; no academic instruction in regular class.
Same as above.
Special day school.
Same as above.
Special boarding school or residential facility.
Same as above.
Hospital School.
Same as above.
Home-based Instruction.
Same as above.
Pupil-Teacher ratio decreases.
Pupil-Teacher ratio increases.

FROM: Alberta Education (1987) Program Adequacy in Special Education

APPENDIX B

Reynolds & Birch (1988) described a Modified Cascade Model (Figure 2) in which "regular classes are made educationally more powerful, in that they have more human and material resources. They are made more diverse, in that in the regular class personnel and materials have, among them, a greater variety of knowledge and skills" (p.26). The emphasis in this model is to move the various forms of specialized instruction into the regular class in order to manage individualized instruction for all students. Reynolds & Birch (1988) also cautioned that there may be certain conditions in which the mainstream cannot accommodate an individual child's unique needs. These conditions may include destructive behavior, severe and profound multiple handicaps and fragile medical or emotional states.

Figure 2


Special classes and schools
POSSIBLE PHYSICAL SPACE AND SOCIAL MAINSTREAMING
Move specialized instructional systems toward the mainstream as soon as feasible
Resource rooms
Regular classes, shops, and laboratories with supportive services
Removal of architectural barriers
Braille and mobility instruction for the blind
Classroom social structure becomes more "cooperative"
Recurring specialized diagnostic appraisal
Total communication for the deaf
Individualized contingency management systems
Effective management of acoustic environment
Individualized instructional management systems
Broad team approaches to planning
FULL MAINSTREAMING

*Note the trend toward fewer specialized places and more diverse "regular" places.

MODIFIED CASCADE MODEL

FROM: REYNOLDS & BIRCH (1988)

APPENDIX C

Adaptive Learning Environment Model (ALEM)

The ALEM is an educational program designed "to create school learning environments in which all students can learn basic academic skills and increase their confidence in their ability to learn and cope with the social and intellectual demands of schooling" (Epps & Tindal, 1987, p.234). It is based on the premise that all students learn in individual ways and therefore adaptive instruction is a feasible way for students to learn.

The ALEM consists of five major components.

- a basic skills curriculum;
- an instructional management system designed to maximize the use of resources;
- a family involvement component designed to increase communication and cooperation;
- a flexible grouping and instructional team system;
- a data-based staff development program.

Students work individually and in small and large groups under the supervision of teachers. Instruction is individually planned and students progress through the curriculum at their own pace. Students are also taught to plan and monitor their own learning in cooperation with teachers. Special education support personnel provide diagnostic consultation and remedial instruction. Through the use of an ongoing staff development delivery system, implementation of the program is monitored and refined.

Epps & Tindal (1987) reported that research shows "consistent, positive trends regarding the feasibility of implementation and the effects of the program both on students' achievement in basic skills and on their social behavior and attitudes" (p.235).

For additional information on the ALEM, refer to:

Wang, M.C. & Birch, J.W. (1984). Effective special education in regular classes. Exceptional Children, 50, 391-398.

Wang, M.C., Gennari, P. & Waxman, H.C. (1984). The adaptive learning environments model: Design, implementation and effects. In M.C. Wang & H.J. Walberg (Eds.), Adaptive instruction to individual differences (pp.191-235). Berkely California: McCutcham.

APPENDIX D

Integrated Classroom Model (ICM)

The ICM (Affleck, Madge, Adams & Lowenbraun, 1988) is designed to increasingly integrate handicapped and nonhandicapped students by tailoring regular education to meet the needs of special needs students, and special education to meet the needs of nonhandicapped students. Mildly handicapped and nonhandicapped students (1:2 ratio) are instructed together using regular school curriculum and materials. Each student is assigned to an age appropriate class in their neighbourhood school with a target enrollment of 24 students per class. All teachers in integrated classrooms have some special educating training.

The ICM identifies several practices that are essential to the success of the integrated classroom:

- highly structured with clear behavioral and academic expectations;
- a variety of teaching methods designed to meet individual student needs;
- cooperative learning situations;
- modified regular curriculum and materials.

APPENDIX E

Collaborative/Consultative Model

The collaborative/consultative model can be viewed as a natural outgrowth of the move towards providing services to students in the least restrictive environment (Huefner, 1988). Idol (cited in Huefner, 1988) describes this model as "a process for providing special education teachers, general education teachers, other school professionals, or parents collaborate to plan, implement, and evaluate instruction conducted in general classrooms for the purpose of preventing or ameliorating students' academic or social behavior problems" (p.403). The goal of this model is to develop parity between regular and special education teachers in which ownership of the learning and behavior problems of all students in the classroom is shared (West & Idol, 1987).

If implemented successfully, a number of potential benefits may be possible. These include a reduction of stigma, a better understanding across disciplines, increased special education skills for regular teachers, reduction of mislabelling, and increased benefits to regular students (Huefner, 1988). However, there also exist a number of potential problems with casual or premature implementation of this model. These include ineffective caseload management, unrealistic expectations, inadequate support and funding, and faulty assumptions regarding cost savings and program effectiveness (Huefner, 1988). It is important for this model to be viewed as a collaborative effort between regular and special education teachers. It is not designed to have special education teachers delivering special education instruction in the regular classroom. Rather, the intent is for regular classroom teachers to receive appropriate support services to enable them to successfully instruct children with special needs. While the philosophical basis for this model is sound, there have been few well designed studies which demonstrate whether the collaborative/consultative model is program effective (Huefner, 1988).